

engagement with the bone of one of the vertebral bodies and said opposite lower surface adapted for placement in engagement with the bone of the other of the vertebral bodies when said implant is placed between the adjacent vertebral bodies; and

a plurality of bone engaging structures formed on said upper and lower surfaces, each of said bone engaging structures having a base, at least two of said bone engaging structures each comprising at least one surface projection having at least one forward facing facet directed at least in part toward said leading end and at least one rearward facet directed at least in part toward said trailing end, each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than the length of said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, said surface projection having opposed side facets extending from said base and being directed generally toward said spaced apart sides of said implant, respectively, said side facets located between said forward facet and said rearward facet of said surface projection, said side facets converging toward each other in a direction away from said base, said side facets having a maximum width therebetween at said base, said base being spaced apart from a base of another of said bone engaging structures by a distance no greater than one-half the maximum width of said surface projection, said forward facets of said at least two of said bone engaging structures facing the same direction.

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7. (Amended) The spinal implant of claim 6, wherein said opposed side facets converge to form a peak at the top of said surface projection.

8. (Amended) The spinal implant of claim 7, wherein said peaks of at least two of said surface projections are aligned along lines that are at least one of perpendicular, parallel, and diagonal to the longitudinal axis of said implant.
9. (Amended) The spinal implant of claim 1, wherein one of said opposed side facets of said surface projection includes a left forward side facet and the other of said opposed side facets includes a right forward side facet directed toward said leading end and said sides, respectively, of said implant.
10. (Amended) The spinal implant of claim 1, wherein one of said opposed side facets of said surface projection includes a left rearward side facet and the other of said opposed side facets includes a right rearward side facet directed toward said trailing end and sides, respectively, of said implant.
11. (Amended) The spinal implant of claim 9, wherein one of said opposed side facets of said surface projection includes a left rearward side facet and the other of said opposed side facets includes a right rearward side facet directed toward said trailing end and sides, respectively, of said implant.
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18. (Amended) The spinal implant of claim 13, wherein at least one of said grooves has a horizontal cross-sectional shape that is one of a v-shape, u-shape, and a box-like shape.
19. (Amended) The spinal implant of claim 1, wherein said bone engaging structures are oriented relative to one another to form an array.
20. (Amended) The spinal implant of claim 1, wherein said bone engaging structures are geometrically disposed relative to one another.
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32. (Amended) The spinal implant of claim 31, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

50. (Amended) The spinal implant of claim 49, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

131. (Amended) An interbody spinal implant for insertion between adjacent vertebral bodies of a human spine, said implant comprising:

a leading end, an opposite trailing end, and spaced apart opposite sides therebetween;

opposite upper and lower surfaces between said leading and trailing ends and said spaced apart opposite sides, said upper surface adapted for placement in engagement with the bone of one of the vertebral bodies and said opposite lower surface adapted for placement in engagement with the bone of the other of the vertebral bodies when said implant is placed between the adjacent vertebral bodies; and

a plurality of bone engaging structures formed on said upper and lower surfaces, at least two of said bone engaging structures each comprising at least one surface projection having at least one forward facing facet directed at least in part toward said one of said spaced apart opposite sides and at least one rearward facet directed at least in part toward the other one of said spaced apart opposite sides, each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than the length of said

C6 rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, said at least one surface projection having opposed side facets directed generally toward said leading and trailing ends, respectively, said side facets located between said forward facet and said rearward facet of said surface projection, said side facets converging toward each other in a direction away from the base of said projection, said forward facets of said at least two of said bone engaging structures facing the same direction.

C7 143. (Amended) The spinal implant of claim 142, wherein said bone growth-promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.--.

Please add the following new claims:

--207. The spinal implant of claim 1, wherein said bases of at least two of said bone engaging structures are adjacent one another.

C8 208. The spinal implant of claim 1, wherein said implant has a longitudinal axis and said bases of at least two adjacent bone engaging structures are spaced apart from one another along a direction generally parallel to the longitudinal axis of said implant.

209. The spinal implant of claim 1, wherein said implant has a longitudinal axis and said bases of at least two adjacent bone engaging structures are spaced apart from one another along a direction generally transverse to the longitudinal axis of said implant.

210. The spinal implant of claim 1, in combination with a device for forming said bone

engaging structures on said upper and lower surfaces of said implant.

211. The combination of claim 210, wherein said device is a milling instrument.

212. The combination of claim 210, wherein said device includes a cutting tool with a V-shaped profile.

213. The spinal implant of claim 131, wherein the bases of at least two of said bone engaging structures are adjacent one another.

214. The spinal implant of claim 131, wherein said implant has a longitudinal axis and the bases of at least two adjacent bone engaging structures are spaced apart from one another along a direction generally parallel to the longitudinal axis of said implant.

215. The spinal implant of claim 131, wherein said implant has a longitudinal axis and the bases of at least two adjacent bone engaging structures are spaced apart from one another along a direction generally transverse to the longitudinal axis of said implant.

216. The spinal implant of claim 131, in combination with a device for forming said bone engaging structures on said upper and lower surfaces of said implant.

217. The combination of claim 216, wherein said device is a milling instrument.

218. The combination of claim 216, wherein said device includes a cutting tool with a V-shaped profile.

219. An interbody spinal implant for insertion between adjacent vertebral bodies of a human spine, said implant comprising:

a leading end for introduction of said spinal implant into the spine, an opposite trailing end, and spaced apart sides therebetween;

opposite upper and lower surfaces between said leading and trailing ends and said spaced apart sides, said upper surface adapted for placement in engagement with the bone of one of the vertebral bodies and said opposite lower surface adapted for placement in engagement with the bone of the other of the vertebral bodies when said implant is placed between the adjacent vertebral bodies; and

a plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said bone engaging structures comprising surface projections having at least one forward facing facet directed at least in part toward said leading end and at least one rearward facet directed at least in part toward said trailing end, each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than the length of said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, said surface projections having opposed side facets directed generally toward said sides of said implant, said side facets located between said forward facet and said rearward facet of said surface projections, said side facets converging toward each other in a direction away from the base of said projections, said rearward facet having an included angle between said rearward facet and the base greater than 90 degrees relative to at least one of said upper and lower surfaces of said implant.

220. The spinal implant of claim 219, wherein said opposed side facets converge to form a peak at the top of each of said surface projections.

221. The spinal implant of claim 220, wherein said peaks are aligned along lines that are at least one of perpendicular, parallel, and diagonal to the longitudinal axis of said implant.
222. The spinal implant of claim 219, wherein adjacent side facets of adjacent surface projections are spaced apart to define a groove therebetween.
223. The spinal implant of claim 222, wherein a plurality of adjacent surface projections are spaced apart to form a plurality of grooves therebetween.
224. The spinal implant of claim 223, wherein at least one of said grooves is parallel to the longitudinal axis of said implant.
225. The spinal implant of claim 223, wherein at least one of said grooves is at an angle to the longitudinal axis of said implant.
226. The spinal implant of claim 223, wherein at least two of said grooves cross each other.
227. The spinal implant of claim 223, wherein at least one of said grooves has a horizontal cross-sectional shape that is one of a v-shape, u-shape, and a box-like shape.
228. The spinal implant of claim 219, wherein said upper and lower surfaces of said implant are at least in part arcuate.
229. The spinal implant of claim 219, wherein at least one of said leading end, trailing end, and sides are curved.
230. The spinal implant of claim 219, wherein said sides are curved.
231. The spinal implant of claim 219, wherein each of said leading end, trailing end, and sides are curved.

232. The spinal implant of claim 231, wherein said leading end, trailing end, and sides form a circle.

233. The spinal implant of claim 219, wherein said upper and lower surfaces of said implant are at least in part planar.

234. The spinal implant of claim 219, wherein said upper and lower surfaces converge along the length of said implant.

235. The spinal implant of claim 219, wherein said implant comprises a material other than bone.

236. The spinal implant of claim 219, wherein said implant comprises bone.

237. The spinal implant of claim 236, wherein said bone includes cortical bone.

238. The spinal implant of claim 219, wherein said implant comprises bone growth promoting material.

239. The spinal implant of claim 238, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

240. The spinal implant of claim 219, wherein said implant is treated with a bone growth promoting substance.

241. The spinal implant of claim 219, wherein said implant is a source of osteogenesis.

242. The spinal implant of claim 219, wherein said implant is at least in part bioabsorbable.

243. The spinal implant of claim 219, wherein said implant comprises metal.

244. The spinal implant of claim 243, wherein said metal includes titanium.



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245. The spinal implant of claim 219, wherein said implant comprises at least one of a plastic material and a ceramic material.
246. The spinal implant of claim 219, wherein said implant is formed of a porous material and a material that intrinsically participates in the growth of bone from one of the adjacent vertebral bodies to the other of the adjacent vertebral bodies.
247. The spinal implant of claim 219, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent vertebral bodies.
248. The spinal implant of claim 219, wherein said spinal implant is a fusion implant.
249. The spinal implant of claim 248, wherein said upper and lower surfaces include at least one opening to permit bone growth from one of the adjacent vertebral bodies to the other one of the adjacent vertebral bodies through said implant.
250. The spinal implant of claim 248, wherein said implant has an internal chamber and an access opening for accessing said internal chamber.
251. The spinal implant of claim 250, wherein said upper and lower surfaces include at least one opening in communication with said internal chamber to permit bone growth from one of the adjacent vertebral bodies to the other one of the adjacent vertebral bodies through said implant.
252. The spinal implant of claim 250, wherein said internal chamber is capable of containing bone growth promoting material.